

Taly Goody, Esq.
Wyoming Bar No.: 8-6737
Greyson M. Goody, Esq.
GOODY LAW GROUP
58 Malaga Cove Plaza
Palos Verdes Estates, CA 90274
Telephone: (310) 893-1983
Email: taly@GoodyLawGroup.com
greyson@GoodyLawGroup.com

T. Michael Morgan, Esq*
Florida Bar No.: 062229
Rudwin Ayala, Esq*
Florida Bar No.: 84005
MORGAN & MORGAN, P.A
20 N. Orange Ave, Suite 1600
Orlando, FL 32801
Telephone: (407) 420-1414
Email: mmorgan@forthepeople.com
rayala@forthepeople.com

** Pro Hac Vice*

*Attorneys for
Plaintiffs*

**UNITED STATES DISTRICT COURT
IN AND FOR THE DISTRICT OF WYOMING**

STEPHANIE WADSWORTH, Individually
and as Parent and Legal Guardian of W.W.,
K.W., G.W., and L.W., minor children, and
MATTHEW WADSWORTH,

Plaintiffs,

v.

WALMART, INC. and JETSON
ELECTRIC BIKES, LLC,

Defendants.

Case No.: 2:23-cv-00118-NDF

JURY TRIAL DEMANDED

**BRIEF IN SUPPORT OF PLAINTIFFS' MOTION TO EXCLUDE THE PURPORTED
EXPERT TESTIMONY OF BRIAN STRANDJORD, PE AND BRIEF IN SUPPORT**

COMES NOW, the Plaintiffs, Stephanie Wadsworth, individually and as parent and legal guardian of W.W., K.W., G.W., and L.W., minor children, and Matthew Wadsworth, (hereinafter "Plaintiffs") by and through their counsel of record Rudwin Ayala, Esquire and Morgan &

Morgan, and submit this Brief in Support of Plaintiffs’ Motion to Exclude the Purported Expert Testimony of Brian Strandjord, PE, showing this Honorable Court as follows:

I. FACTS

A. Introduction

The Defendants hired expert Brian Stranjord for the primary purpose of “arc mapping” a psuedo-science technique that proposes to determine the origin of a fire by investigating how fire interacted with electrical conductors (wires) during the course of a live fire. While Standjord’s testimony should fail because it cannot satisfy rule 702, most notably is the peer-reviewed literature discredits the use of arc mapping for the purpose of determining the origin of a fire. The literature goes on to point out that despite being around for decades not a single statistically significant study has been done to support accuracy. The highly subjective nature and inability to recreate or challenge the expert’s findings makes the use of arc mapping in this case highly misleading to the jury as it purports to be science, but in actuality is nothing more than a subjective ipse dixit opinion of a retained expert.

B. Background

Defendants have retained Brian Strandjord, PE, a licensed mechanical and electrical professional engineer to offer opinions as to the origin of the fire at the Wadsworth residence on February 1, 2022. Strandjord authored a report on September 13, 2024 related to his review and ultimate opinions in the case. See Strandjord Report, attached as Exhibit “A”. According to Strandjord, his tasks included performing an inspection at the Wadsworth property on May 18, August 2, and August 3, 2022; examining preserved artifacts at Palmer Engineering facility in North Salt Lake, Utah on October 30 and 31, 2023; and reviewing case materials including various deposition transcripts, photographs, and two literary materials/resources.

C. Strandjord Opinions

Strandjord's final expert report issued on September 13, 2024 provided the following opinions:

1. Evidence of electrical arcing was present on conductors located within the polymer Smoking Shed adjacent to the Residence.
2. There was no evidence of electrical arcing on conductors located within the Residence.
3. The physical evidence presented by the electrical system at the Residence was consistent with:
 - a. Fire being present at or within the polymer Smoking Shed prior to the time that the fire severed the overhead service triplex to the Residence.
 - b. The overhead service triplex being severed by the fire prior to the time that the fire attacked the branch circuit wiring within Bedroom #4 of the Residence.
4. The physical evidence presented by the electrical system at the Residence was not consistent with a fire originating within the Residence.

The opinions offered by Strandjord are a veiled attempt at concluding that the origin of the subject fire was the outside shed, as opposed to inside the home.

Despite the conclusions reached, Strandjord is unqualified to render the aforementioned opinions as a result of his lack of true expertise in this field, his flawed methodology, and his reliance on unreliable scientific principles, i.e. electrical arcing. As explained below, Strandjord's opinions are inadmissible for several reasons.

II. SUMMARY OF ARGUMENT

Each of Strandjord's opinions must be excluded because they fail to meet the admissibility standards of Rule 702 due to either a lack of qualifications, a failure to establish a reliable

methodology, a failure to apply a methodology reliably, or a combination thereof. Strandjord ultimate opinions rely on the stacking of multiple inferences to conclude that the fire started in the shed. First, Strandjord is not qualified to render opinions related to electrical arcing given his lack of education and experience in this area. He has no specific certification in this field that he was able to testify to at his deposition, he has no professional experience with electrical arcing outside of his expert witness work, and he has never taught or authored any publications relating to electrical arcing.

Second, Strandjord's opinions are not based on sufficient facts and data, as he admittedly omitted evidence that necessarily should have been collected for a full and adequate analysis.

Third, arc mapping is an unreliable science that should not be applied in litigation for presentation to a jury as to the origin of a fire. Numerous peer-reviewed articles exist establishing the unreliable nature of arc mapping, and stressing the significant concerns with presentation of such evidence in litigation. Arc mapping cannot be used to determine the origin of a fire. Notably, Strandjord is unaware of any peer-reviewed articles or statistically significant studies that support the use of arc mapping for determining the origin of the fire

Lastly, even if this Court concludes that electrical arcing is an acceptable and reliable science, and that Strandjord is qualified to opine on electrical arcing and its impact on the analysis of fire origin in this case, he failed to demonstrate that he utilized a reliable methodology in reaching his opinions as to the origin of the fire. Strandjord did not conduct an inspection of all circuits at the Wadsworth residence, did not rely on any peer-reviewed literature specific to electrical arcing, he ignored key testimony from witnesses describing the fire on the inside of the home that would have established the origin of the fire on the inside of the home, and only relied upon his subjective physical examination of one circuit to determine the presence of electrical

arcings. Importantly, Strandjord could not exclude the possibility of the presence of electrical arcing in any portion of the home, only that arcing was present at the outside shed. Strandjord's stacking of inferences or assumptions, and selective omission of available evidence at the scene of the fire demonstrates his unreliable methodology. With complete lacking of scientific method and objectivity, the testimony becomes an ipse dixit argument of what Strandjord "sees" without any reproduceable or peer-reviewed literature backed authority. As such, Strandjord's opinions must be excluded for lack of sufficient reliability.

III. ARGUMENT AND CITATION TO AUTHORITY

Fed R. Evid. 702 governs the admissibility of expert testimony, providing as follows:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to facts of the case.

Fed. R. Evid. 702

Despite the relatively liberal language employed in Rule 702, The Supreme Court of the United States clarified—in no uncertain terms—that the text of Rule 702 requires judges to serve as gatekeepers in determining the admissibility of expert testimony. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999); *see also Daubert v. Merrel Dow Pharmaceutical, Inc.*, 509 U.S. 579, 592-93 (1993). The gatekeeping role is “significant” because an “expert’s opinion ‘can be both powerful and quite misleading.’” *United States v. Frazier*, 387 F.3d 1244, 1260 (11th Cir. 2004) (quoting *Daubert*, 509 U.S. at 595). As the Supreme Court explained in *Daubert* and *Kumho*, Rule 702 requires the district court to ensure that an expert’s testimony is both relevant and reliable

before it may be admitted, regardless of whether the testimony is scientific or based on technical or other specialized knowledge. *See Kumho Tire Co.*, 526 U.S. at 147; *Daubert*, 509 U.S. at 589.

“The burden of laying the proper foundation for the admission of the expert testimony is on the party offering the expert, and admissibility must be shown by a preponderance of the evidence.” *Allison v. McGhan Med. Corp.*, 184 F.3d 1300, 1306 (11th Cir. 1999). Trial courts routinely look to three elements to determine if an expert is qualified under *Daubert* and Rule 702. The elements for consideration are whether: (1) the expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusions is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert*; and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue. *Frazier*, 387 F.3d at 1260. “[A]lthough there is some overlap among the inquiries into an expert’s qualifications, the reliability of his proffered opinion and the helpfulness of that opinion, these are distinct concepts that courts and litigants must take care not to conflate.” *Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd.*, 326 F.3d 1333, 1341 (11th Cir. 2003). A trial court has broad latitude in evaluating each of these factors. *See Kumho Tire Co.*, 526 U.S. at 152 (appellate courts review a district court’s decision to exclude an expert’s testimony under an abuse of discretion standard); *see also, Quiet Tech. DC-8, Inc.*, 326 F.3d at 1340 (the district court’s decision to exclude an expert will not be disturbed on appeal unless it is “manifestly erroneous”) (internal quotations omitted). “[M]any courts have held that the critical questions of the sufficiency of an expert’s basis, and the application of the expert’s methodology, are questions of weight and not admissibility. These rulings are an incorrect application of Rules 702 and 104(a).” Fed. R. Evid. 702 advisory

committee's notes to 2023 amendments. *Hickcox v. Hyster-Yale Grp., Inc.*, 715 F. Supp. 3d 1362, 1380 (D. Kan. 2024)

For the reasons below, Strandjord's expert opinions fail to meet the admissibility requirements dictated by Rule 702 as interpreted by *Daubert* and its progeny.

A. Strandjord is not qualified to testify competently as to arc mapping.

Strandjord's deposition testimony demonstrates that he lacks the education or experience necessary to make him an expert in the field of arc mapping, and he is also not a metallurgist. Therefore, his arcing opinions, and thereby the entirety of his fire origin opinions, are not sufficiently reliable to warrant admission. Additionally, the opinions he stated in his deposition regarding the melting temperatures of materials and expected compromise must be excluded, as Strandjord is not educated, trained, or experienced as a metallurgist to render such opinions.

The reliability requirement is designed to ensure that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999)(quoting *Daubert*, 509 U.S. at 597). As it relates to qualifications, "[a] witness is *qualified* as an expert if he is the type of person who should be testifying on the matter at hand." *Moore v. Intuitive Surgical, Inc.*, 995 F.3d 839, 852 (11th Cir. 2021) (emphasis original); *see, In re Mentor Corp. ObTape Transobturator Sling Prods. Liab. Litig.*, 711 F. Supp. 2d 1348, 1367 (M.D. Ga. 2010) ("in determining whether a proffered expert is 'qualified' to offer an opinion, courts generally look to evidence of the witness's education and experience and ask whether the subject matter of the witness's proposed testimony is sufficiently within the expert's expertise"). And while it is true that a witness may be qualified as an expert based on experience alone, "[w]hen an expert witness relies mainly on experience to show he is qualified to testify, 'the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient

basis for the opinion, and how that experience is reliably applied to the facts.” *Payne v. C.R. Bard, Inc.*, 606 F. App’x 940, 942-43 (11th Cir. 2015) (quoting *Frazier*, 387 F.3d at 1261). When scrutinizing the ‘knowledge’ prong of Rule 702, one factor that courts consider “is whether other experts exist who are more specifically qualified. *Stagl v. Delta Air Lines, Inc.*, 117 F.3d 76, at 81 (2d Cir. 1997)

To that end, metallurgy is defined as “[t]he branch of engineering concerned with the production of metals and alloys, their adaptation to use, and their performance in service; and the study of chemical reactions involved in the processes by which metals are produced, and the laws governing the physical, chemical, and mechanical behavior of metallic materials. Metallurgy, *DICTIONARY OF MATERIALS SCIENCE* (1st Edition, 2003). Metallurgy involves understanding the composition and behavior of metals and routinely requires the application of microscopic methodologies. Metallurgical failure analysis is the process by which a metallurgist determines the mechanism that has caused a metal component to fail. S.V. Hainsworth, *Critical Assessment 26: Forensic Metallurgy-The Difficulties*” 33 (14) *MAT. SCI. AND TECH.* 1553-59 (2017). Although some general scientific principles apply to both electrical engineering and metallurgy, “...most fire investigators and/or electrical engineers do not possess professionally based, specialized scientific knowledge about metallurgy and are therefore not qualified to give an opinion involving forensic metallurgy, phase transformations in metal and alloys, or to conduct a high magnification examination of electrical conductor artifacts.” Thomas R. May, Esq. and David J. ICove, Ph.D., P.E., *Arc Mapping Methodologies & The Pursuit of Magical Globules, Notches, & Beads: A Bridge Too Far to Establish Fire Origin?*, 7 *Lincoln L. Rev.* 37 (2020), attached as Exhibit B; See also *Cole’s Tool Works v. Am. Power Conversion Corp.*, No. 2:06CV169-P-A, 2009 WL 901764 (N.D. Miss. Mar. 31, 2009) (holding that a forensic electrical engineer with

decades of experience in investigating electrical aspects/causes of fire and other events confirmed the reliability of his opinions through published, peer-reviewed literature, testing, and independent metallurgical analysis.”(*emphasis added*). Strandjord has no metallurgical-related educational qualifications and scientific expertise, including but not limited to: (a) specific coursework, (b) scientific research, (c) submission or publication of associated literature, (d) lecturing engagements, or (e) any other scholarly work in the areas of metallurgy or material science. As he stated quite clearly in deposition, he only had some basic material science classes during his undergraduate education, but not further education. See Exhibit C¹ at pages 8, 9 and 24. Without that education or experience, he is woefully unqualified to offer opinions which he is basing on “arcing found on the metal fragments within the shed” Exhibit C at page 68. Strandjord focuses much of his opinions on the science involving melting of the conductors and different materials, which cannot be relied upon. Strandjord’s first real exposure to arc mapping was when he worked in forensics for Rimkus. It was only then that he did any “training”, which still mostly consisted of general fire investigation and not arc mapping. See Exhibit C at pages 11, 12; See also Mr. Strandjords C.V., attached hereto as Exhibit “D”.

There is a significant difference in the educational parameters of fire investigation practitioners and metallurgists. Merely having a degree and academic background in electrical engineering is insufficient to demonstrate specialized knowledge and experience that would enable Strandjord to provide meaningful opinion evidence relevant to the complex and multi-faceted issue of arc interpretations. Arc mapping encompasses conducting a metallurgical analysis to determine if an electrical event has transpired, or alternatively, observed fire artifacts that have merely been

¹ Since Mr. Strandjord’s deposition was taken on November 27, 2024, the parties have agreed to use the rough draft version of his deposition transcript for purposes of any motions challenging his qualifications or opinions, such as the instant motion.

exposed

to sufficient temperature to cause melting. Without the specialized education and training, Strandjord's opinions amount to nothing more than speculative inferential leaps.

Furthermore, Mr. Strandjord has never published any literature, including on the topic of arc mapping. Ex. C at page 73. Mr. Strandjord doesn't even subscribe to any peer-reviewed journals in the field of fire investigation and technology. Ex. C at page 59. Though a proffered expert possesses knowledge as to a general field, the expert who lacks specific knowledge does not necessarily assist the jury." *City of Hobbs v. Hartford Fire Ins. Co.*, 162 F.3d 576, 587 (10th Cir. 1998) (citation omitted). Mr. Strandjord is not qualified and does not meet the requirements of *Daubert* and rule 702 Fed. R. Evid. In order to testify competently regarding the matters he intends to address.

B. Strandjord's opinions are not based on sufficient facts or data.

Rule 702 also involves a quantitative analysis that utilizes necessarily complete data to ensure that conclusions reached are satisfactorily accurate and not merely the product of assumptions. Peer-reviewed publications explaining arc mapping methodologies directs practitioners to conduct the investigation to disprove alternative hypotheses because "an expert's failure to explain or adequately disprove alternative theories of causation makes his or her theory speculative and conclusory." *Wal-Mart Stores, Inc. v. Merrell*, 313 S.W.3d 837, 840 (Tex. 2010).

Strandjord's analysis and conclusions failed to take into account sufficient facts and data relating to the conductors of the entire house. Concluding that the origin of the fire was at the outside shed because of purported arcing found, despite his inability to identify whether it was a causal arc or victim arc², and because of the lack of arcing inside the home does not take into

² Strandjord defined victim arcs as those that result from fire attacking an energized circuit, whereas a causal arc would be an arcing event that ignites a fire. Exhibit B at page 66.

account the entirety of the facts or data. As stated earlier, Strandjord did not examine the branch circuits outside of the one for Bedroom 4. This is significant because without doing so he could not determine whether any other part of the home was energized when the fire was inside Bedroom 4. His opinion that the fire originated at the shed and then severed the overhead service triplex to the residence is speculative, at best, without confirming or ruling out whether the remainder of the home was de-energized. This is the exact type of speculative testimony that must be excluded from a jury's consideration.

Furthermore, Strandjord admitted that he did not attempt to search for arcing locations at the site where he removed the branch circuit for Bedroom 4. "It was determined that that would be better conducted in the laboratory setting." See Exhibit C at page 45. He took no pictures or even attempted to conduct such a search at the location. Exhibit C at pages 46 and 49. It could have been done, but he felt it would be more productive to collect the evidence and examine it at the lab. Exhibit C at pages 48 and 49. Although Strandjord states that his scope was not to look for or determine a specific area of origin (Exhibit C at page 53), he certainly goes on to testify and opine that the fire began outside the home which resulted in the service triplex being severed before the fire spread to the inside of the home. The inference is, without a doubt, that the fire began at the shed. In fact, no other theory has been presented or even inferred by Stranjord or the Defense. This conclusion rests on a mountain of inferences since he never examined any other conductors or circuits besides the one for Bedroom 4 within the residence. Not only is this a representation of faulty reasoning based on insufficient facts and data, but it further demonstrates a failure to abide by the scientific method set forth in NFPA 921, which he stated he relied upon for his analysis. Additionally, it is inconsistent with his subsequent testimony that a fire in Bedroom 4 coming out of the window that presented to the service triplex could cause the aluminum to melt and sever the

service to the residence. Exhibit C at pages 69 and 70. There is a massive analytic gap between the data and the opinions proffered, which this Court must refuse to admit as expert testimony. *General Electric Co. v. Joiner*, 522 U.S. 136, 146 (1997). To allow Strandjord to offer any expert testimony in this case would be sanctioning guesswork and validating the following assumptions with no factual basis:

- The electrical arcing he identified in the shed was a causal arc, as opposed to a victim arc;
- No arcing existed inside the home;
- The rest of the home was de-energized at the time the fire existed in Bedroom 4;
- The fire investigator who reviewed the physical evidence at the scene and concluded Bedroom 4 was the origin was wrong or lied;
- The children's testimony that when they arrived outside during the fire that the shed was still intact was wrong or they lied;
- The presence of the hoverboard in Bedroom 4 was just a coincidence;
- The fire scene evidence, as reported by the investigators, is unreliable;
- The service triplex could have only been severed by a fire originating outside the home.

These assumptions are not reasonably based on any reliable principles of law or fact, and are exactly the type that must be rejected due to the likelihood of misleading a jury.

C. Strandjord failed to employ a reliable methodology in reaching his opinions concerning the origin of the fire.

The court has discretion to determine how to perform its gatekeeping function under Daubert. *Bill Barrett Corp. v. YMC Royalty Co., LP*, 918 F.3d 760, 770 (10th Cir. 2019). “The most common method for fulfilling this function is a *Daubert* hearing, although such a process is not specifically mandated.” *Goebel v. Denver & Rio Grande W. R.R.*, 215 F.3d 1083, 1087 (10th Cir. 2000) (citations omitted). To determine whether an expert's testimony is sufficiently reliable to satisfy the requirements of Rule 702, “the trial judge must assess whether the reasoning or methodology underlying the testimony is scientifically valid and whether that reasoning or

methodology properly can be applied to the facts in issue.” *United States v. Frazier*, 387 F.3d 1244, 1261-62 (11th Cir. 2004). The court is duty-bound to exercise its gatekeeping function to weed out unreliable expert testimony. *Hickcox v. Hyster-Yale Grp., Inc.*, 715 F. Supp. 3d 1362, 1377 (D. Kan. 2024)

If admissibility could be established merely by the ipse dixit of an admittedly qualified expert, the reliability prong [of the *Daubert* analysis] would be, for all practical purposes, subsumed by the qualification prong. Thus, it remains a basic foundation for admissibility that proposed expert testimony must be supported by appropriate validation—i.e., ‘good grounds,’ based on what is known.” *Frazier*, 387 F.3d at 1261 (quotation and citation omitted).

“Indeed, the Committee Note to the 2000 Amendments of Rule 702 expressly says that, ‘[i]f the witness is relying solely or primarily on experience, then the witness must explain *how* that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts.’” *Frazier*, 387 F.3d at 1261. Thus, the inquiry into reliability must focus on “principles and methodology” and not the expert witness’s conclusions. *In re Com. Fin. Servs., Inc.*, 350 B.R. 559, 566 (Bankr. N.D. Okla. 2005)(quoting *Daubert*, 509 U.S. at 594-95). “In evaluating the reliability of an expert’s method, however, a district court may properly consider whether the expert’s methodology has been contrived to reach a particular result.” *Rink v. Cheminova, Inc.*, 400 F.3d 1286, 1293 (11th Cir. 2005).

The Supreme Court in *Daubert* listed four non-exhaustive factors that a trial court may consider in making its reliability assessment: (1) whether the expert's technique or theory can be and has been tested; (2) whether the theory has been subjected to peer review or publication; (3) whether the technique has a known or potential rate of error and whether there are standards

controlling the technique's operation; and (4) whether the theory has been generally accepted in the relevant scientific community. *Lippe v. Howard*, 287 F. Supp. 3d 1271, 1278 (W.D. Okla. 2018). The answer to most of these as it relates to Strandjord and his involvement in this case is in the negative.

1. The Expert's technique or theory cannot be adequately tested.

Strandjord's technique was flawed and relied upon subjective actions. He did not review all available evidence at the scene, so a proper testing of his technique would exclude relevant and necessary evidence. Additionally, he stated that he used his fingers as the tool and technique to search for arcing along the relevant conductor. Exhibit C at page 41. It does not get more subjective than that. That methodology cannot be tested other than with Strandjord's fingers and mind.

In a similarly incomplete and subjective manner, Strandjord opined that the evidence of arcing he purportedly found within the shed existed on short sections of wire that were severed "from whatever cord that they were originally part of prior to the fire." Exhibit C at page 57. He testified they were copper, but was unable to give any further detail about it, including what could be connected to it. Without any of this information, his theory and technique could not be adequately tested and relied upon.

2. The Expert's theory has been subjected to peer review or publication

The theory of arc mapping for purposes of analyzing fire origin has been subjected to peer-review. *Daubert* states that "publication in a peer-reviewed journal [is] a relevant, though not dispositive, consideration in assessing the validity of a particular technique or methodology on which an opinion is premised." *Daubert*, 509 U.S. at 594. Nevertheless, publication and peer review "serve[s] as independent indicia of the reliability of the . . . technique" and "demonstrate[s] a measure of acceptance of the methodology within the scientific community." *Ruiz-Troche v.*

Pepsi Cola of Puerto Rico Bottling Co., 161 F.3d 77, 84 (1st Cir. 1998); see also *Daubert*, 509 U.S. at 593 (“[S]ubmission to the scrutiny of the scientific community is a component of ‘good science.’”)

One of the foremost experts in the field of fire safety science, explosion safety, electrical failures, fires and explosions, Vytenis Babrauskas has conducted numerous studies and published voluminous peer-reviewed material on various fire topics, including arc mapping. In fact, Mr. Strandjord acknowledged Mr. Babrauskas’ work in the field, including his authoring of the Ignition Handbook. See Exhibit C at page 60. Mr. Babrauskas published a peer-reviewed article titled “ARC MAPPING: NEW SCIENCE, OR NEW MYTH?”³ Attached hereto as Exhibit “E”. In that article, which Strandjord had never reviewed despite being in this field for over a decade, Mr. Babrauskas gave an entire history of arc mapping and reached very explicit conclusions about the reliability (or lack thereof) of arc mapping. Specifically, Mr. Babrauskas stated that:

Conclusions drawn from an arc map...may be unreliable and inconsistent with known science, depending on the inferences being drawn. Arc mapping is a tedious process, since it requires detailed examination of all the conductors in the relevant building area, which is likely to be a painstaking process. In addition, it requires that the circuits be traced and identified, which can be difficult to do. This requirement may also make arc mapping impossible, since there are many fires where, due to the type of damages sustained, circuits cannot be successfully traces.
Exhibit E at pages 901-02.

While some of Mr. Babrauskas’ conclusions above surely speak to the methodology, it highlights the reason why arc mapping tends to be unreliable. He goes on the state that only in a small fraction of cases can reliable conclusions be drawn from arc mapping. **“But in the majority of cases, principles of science do not allow conclusions to be drawn from an arc map with**

³ Babrauskas, V., Arc Mapping: New Science, or New Myth?, Fire Science and Technology Inc., San Diego, CA (2017).

regards to the origin of the fire. In the cases where valid conclusions can be drawn, they only establish the local direction of fire movement at a specific locale, and do not suffice to identify the area of origin of the fire.” Exhibit E at page 902. Emphasis added. Mr. Babrauskas went on to state that the probability of a building’s branch circuit exhibiting conditions for allowing a valid arc-mapping conclusion is less than 1%, and is estimated to be 0.7% as it relates to solid-core conductors- which is what Strandjord analyzed in this case. *Id.* To be even more clear, “there is no valid basis to claim that arc patterns will identify the area of origin.” *Id.*

The totality of published experimental results does not support the ability of arc patterns to identify the area of fire origin. This is especially notable, since most studies have been effectively biased in favor of positive findings, due to lack of thermal protection for the circuits being fire-exposed. And even in the one study that did use thermal protection, the installation was not compliant with the electrical code, and the non-compliance was such as to bias the results towards a positive finding.

Exhibit E at 902.

The examination by Mr. Babrauskas, a world renowned source whose publications are relied upon by fire investigators and experts every day, concludes the article by urging for changes in NFPA 921 to eliminate arc mapping as one of the four main methods for establishing fire origin, and to subsume it under the more general category of “fire patterns”. *Id.* At 903. He further stated that “it is important that NFPA 921 reduce the implied general utility of the method and provide more explicit discussion of its limitations and of those circumstances where arc mapping is a valid method for assisting in the determination of a fire origin.” *Id.*

Arc Mapping: A Critical Review, published in Fire Technology, a peer-reviewed journal⁴, was written by Mr. Babrauskas and also stands for the following proposition: “Only in rare cases where it might be demonstrated that fuel concentration or ventilation effects were not governing,

⁴ As testified to by Strandjord at Exhibit C at page 58.

would it be possible to use arc mapping results as pointers to the area of fire origin.”⁵ Attached hereto as Exhibit F. Mr. Babrauskas cautions that a rather confusing hypothesis which implies that arc sites will be found predominantly near the fire origin is an assumption that is “not a deduction from any principles of science, and would only potentially be true if shown to be so on the basis of experimental testing.” *Id.* at page 774. No such experimental testing has been done to establish such. Furthermore, even if used legitimately, an arc map conveys greatly less information than fire scene surveys based other types of damage patterns.⁶ *Id.* at page 775.

Strandjord was given the opportunity to point to any studies that were statistically significant relating to arc mapping, and he could not point to one. Exhibit C at page 68.

3. The technique utilized by Strandjord does not have a known or potential rate of error, and there are no true standards controlling the technique’s operation in the context of fire origination.

A mathematical error rate regarding arc mapping scientific methodology/practitioner error, when used in fire origin inquiries, has not been calculated. None have been provided by Strandjord. As for the standards controlling the technique's operation, arc mapping is not intended to be a reliable tool for fire origin analysis. Although arc mapping is discussed within NFPA 921, which Defendants will surely bring to the Court’s attention, the manner in which it is being misapplied by Strandjord is not the “standard’s” intention. In fact, NFPA 921 did away with arc mapping as one of the four main methods for establishing fire origin, and subsumed it under the more general category of “fire patterns”.

If any such standards did exist, they would be those listed in the peer-reviewed literature cited to earlier in this brief. Those included mapping of an adjacent conductor and inspection of

⁵ Babrauskas, V., Arc Mapping: A Critical Review, Fire Technology, San Diego, CA (2017) at page 749.

⁶ Fire scene surveys and analysis performed by the first responders on the scene were within Strandford’s possession and among the materials he purportedly reviewed, though did not apparently rely upon.

the circuit at the site of the fire. That was not done by Strandjord in this case. The only circuit inspected by him was the one for Bedroom 4. The key physical internal indicators of an arc site on both solid and stranded conductors are porosity throughout the bead or notch, irregular or lack of microstructure in the bead or notch and an area or line of demarcation between an arc site ***and the adjacent conductor***. Elizabeth C. Buc et al., *Method to Characterize Damage to Conductors*, FIRE SCENES (2013). Without examining an adjacent conductor, Strandjord's analysis is incomplete, and thus unreliable.

Additionally, Strandjord failed to inspect the branch circuit for Bedroom 4 at the scene for evidence of arcing before removing it to take it to a lab. Exhibit C at page 21. He collected no other branch circuits within the house besides Bedroom 4. Exhibit C at page 22. Due to his failure to inspect or collect any circuits other than Bedroom 4, he could not testify whether other circuits were energized at the time the fire reached Bedroom 4. Exhibit C at page 23.

Q: Okay. But you did not inspect those to be able to give us an opinion here today that you believe they were de-energized because of lack of arcing, correct.

A: Correct. I did not physically inspect those other conductors.

Q: And the same vein, you did not trace each physical conductor back to the circuit breaker; is that fair?

A: From the other parts of the those, that is correct.

Q: Okay. So when we talk about tracing the circuit breaker, we are limiting that to Bedroom 4 and the extension cords that were in the shed outside of Bedroom 4; is that fair?

A: Correct. We are limiting it to the area – the potential areas of origin identified by the fire investigators.

Exhibit C at page 23 and 24.

He testified that inspection at the scene was feasible, but he decided not to do it. These failures in Strandjord's methodology result from a lack of true established standards controlling the technique's operations, and ultimately just render his efforts unreliable.

Without a potential rate of error, or established standards controlling the technique's operation, the method employed by Strandjord equates to a subjective analysis that cannot be trusted.

4. The theory of arc mapping for purposes of analyzing fire origin has not been generally accepted in the relevant scientific community

The science of arc mapping is not reliable, and absolutely is not generally accepted in the scientific field as reliable when used to determine fire origin. "[G]eneral acceptance in the scientific field is highly probative of the reliability of a scientific procedure." *State v. Montalbo*, 73 Haw. 130, 138 (1992). "'General acceptance' . . . means consensus drawn from a typical cross-section of the relevant, qualified scientific community." 31 Cal. Jur. 3d Evidence § 441 (2020). "[T]rial courts, in determining the general acceptance issue, must consider the quality, as well as quantity, of the evidence supporting or opposing a new scientific technique. Mere numerical majority support or opposition by persons minimally qualified to state an authoritative opinion is of little value." *People v. Leahy*, 8 Cal. 4th 587, 612 (1994) (emphasis added). Simply citing to NFPA 921, as Strandjord did, for the proposition that arc mapping is accepted as a reliable methodology is misleading and a misstatement of its inclusion in the NFPA 921 standard. It is no longer listed as one of the four main methods for establishing fire origin, and as has been demonstrated by a leading authority in the field (Babrauskas), has extreme limitations that render it unreliable.

D. Strandjord is not an objective expert witness, and must not be permitted to offer opinions at the time of trial as any testimony would be unfairly prejudicial and misleading.

“[W]here an expert becomes an advocate for a cause, he therefore departs from the ranks of an objective expert witness, and any resulting testimony would be unfairly prejudicial and misleading.” *Agri-Sys. v. Structural Techs., LLC*, No. 19-CV-02238-CMA-STV, 2023 WL 3481397, at *4 (D. Colo. May 16, 2023); citing *Viterbo v. Dow Chem. Co.*, 646 F. Supp. 1420, 1435 (E.D. Tex. 1986). In *Viterbo*, the court deemed the plaintiff’s proffered expert had become an advocate because the witness had sought employment from the plaintiff’s attorney and had not reviewed the plaintiff’s alleged medical conditions objectively. *Id.* The court in *Johnston v. United States*, 597 F. Supp. 374 (D. Kan. 1984), also rejected the testimony of two expert witnesses because they had “become advocates for a cause.” *Id.* at 411. The court concluded one of these witnesses had “become a professional plaintiff’s expert witness..., and identified himself so closely and so consistently with the plaintiff’s side in these cases that his testimony must be seen as lacking in credibility due to this obvious bias.” *Id.*

Strandjord here has acknowledged that he has worked with Defense counsel or his firm approximately 10 to 20 times previously, on cases involving fires or explosions. Exhibit C at page 77. Ninety (90) percent of the work that he does as a forensic engineer is on behalf of Defendants. Exhibit C at page 80. He has been retained on hoverboard cases previously, and on those cases has never agreed that the source of the fire was a lithium-ion battery from a hoverboard. *Id.*

Given the longstanding relationship between Strandjord and Defense counsel, and his historical record of always offering opinions that favor the Defendant on cases in which he’s been retained, it is clear that any resulting testimony from him would be unfairly prejudicial and misleading to a jury. As such, Strandjord must be precluded from offering expert opinions in this case.

V. CONCLUSION

Based on the foregoing evidence, arguments, and authority, Plaintiffs respectfully request that this Court issue an Order excluding Strandjord's opinions in their entirety for failure to meet the admissibility standards set forth by Rule 702 and as interpreted by Daubert and its progeny.

Date: December 2, 2024

Respectfully Submitted,

/s/ Rudwin Ayala

RUDWIN AYALA, Esq.*

Florida Bar No.: 84005

MORGAN & MORGAN, P.A

1700 Palm Beach Lakes Blvd, Suite 500

West Palm Beach, FL 33401

Telephone: (561) 764-2220

Emails: rayala@forthepeople.com

sleroy@forthepeople.com

Admitted Pro Hac Vice

And,

/s/ Taly Goody

TALY GOODY, ESQ.

Wyoming Bar No.: 8-6737

GREYSON M. GOODY, ESQ.

GOODY LAW GROUP

58 Malaga Cove Plaza

Palos Verdes Estates, CA 90274

Telephone: (310) 893-1983

Emails: taly@GoodyLawGroup.com

greyson@GoodyLawGroup.com

Local Counsel

/s/ T. Michael Morgan

T. MICHAEL MORGAN, ESQ.*

Florida Bar No.: 062229

Kentucky Bar No.: 94856

MORGAN & MORGAN, P.A

20 N. Orange Ave., Suite 1600

Orlando, FL 32801

Telephone: (407) 420-1414

Emails: mmorgan@forthepeople.com

akelseyflowers@forthepeople.com

Admitted Pro Hac Vice